Wisconsin
Department of Commerce

Evaluation # 200221-M (Replaces 960007-M)

Safety & Buildings Division
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Wisconsin
Building Products Evaluation

Material	Metal Building
Manufacturer	United Structures of America P.O. Box 605, 214 Fountainhead Road Portland, Tennessee 37148

SCOPE OF EVALUATION

GENERAL: This report evaluates the use of RF, BC, SC, SCSS and LT Series pre-engineered metal building systems manufactured by United Structures of America, through a review of structural performance.

This review includes the cited **Comm** code requirements below in accordance with the current **Wisconsin Building and Heating, Ventilating and Air conditioning Code:**

Structural: The RF, BC, SC, SCSS and LT Series pre-engineered metal building systems were evaluated in accordance with **ss. Comm 53.10**, **53.11**, **53.12**, **5316**, **53.50**, **53.51** and **53.53**.

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This review includes the cited **International Building Code (IBC)** requirements below in accordance with the **Wisconsin Amended IBC Code (effective 7/01/02):**

Structural: The RF, BC, SC, SCSS and LT Series pre-engineered metal building systems were evaluated in accordance with **ss. IBC 1603.1**, **1604.1**, **1604.2**, **1604.3.1**, **1604.3.3**, **1604.4**, **1604.5**, **1605.1**, **1606**, through **1609**, **2208.1 [Comm 62.2208]**, **2209.1**, **2209.2**, and **2211.5**.

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DESCRIPTION AND USE

General: The RF, BC, SC, SCSS and LT Series pre-engineered metal building systems:

Rigid Frame: The Rigid Frame "RF" system is manufactured of solid web members having tapered or uniform depth rafters, rigidly connected to tapered or uniform depth columns.

The standard roof system provided with the Rigid Frame structural system is "PBR" 36 inch wide net coverage panels, with 1-1/4-inch high major webs at 12 inch centers, and utilizing a purlin bearing leg for underlying side-lap support.

As an option, the "Guardian Standing Seam" 24-inch wide system may be provided.

The 36 inch wide "A" sculptured wall panel is the standard wall covering for the Rigid Frame system. This panel features 1-1/4-inch depth inverted major ribs and semi-concealed side-lap fasteners and comes in a variety of colors.

The secondary framing system consists of the cold-formed, light-gage eave struts, roof purlins, wall girts, wind bracing and other members required to support the roof and wall covering. These members transmit the loads to the primary framing system.

The standard building spans range from 20 feet to 120 feet. The standard eave heights range from 10 feet to 25 feet.

Beam and Column: The Beam and Column "BC" system is manufactured of solid web members having tapered or uniform depth rafters rigidly connected to tapered or uniform depth exterior columns and uniform depth or round section interior columns.

The standard roof system provided with the Beam and Column structural system is "PBR" 36-inch wide net coverage panels, with 1-1/4-inch high major webs at 12 inches centers, and utilizing a purlin bearing leg for underlying side-lap support.

The 36 inch wide "A" sculptured wall panel is the standard wall covering for the Beam and Column system. This panel features 1-1/4-inch deep inverted major ribs and semi-concealed side-lap fasteners and comes in a variety of colors.

The secondary framing system consists of the cold-formed, light-gage eave struts, roof purlins, wall girts, wind bracing and other members required to support the roof and wall covering. These members transmit the loads to the primary framing systems.

The standard building spans range from 80 feet to 240 feet. The standard eave heights range from 12 feet to 25 feet.

Straight Column: The Straight Column "SC" and the Straight Column Single Slope "SCSS" systems are manufactured of solid web members having tapered or uniform depth rafters rigidly connected to uniform depth columns.

The standard roof system provided with the Straight Column structural systems is "PBR" 36 inch wide net coverage panels, with 1-1/4-inch high major webs and 12 inch centers, and utilizing a purlin bearing leg for underlying side-lap support.

The 36 inch wide "A" sculptured wall panel is the standard wall covering for the Straight Column systems. This panel features 1-1/4-inch deep inverted major ribs and semi-concealed side-lap fasteners and comes in a variety of colors.

The secondary framing systems consists of the cold-formed, light-gage eave struts, roof purlins, wall girts, wind bracing and other miscellaneous members required to support the roof and wall covering. These members transmit the loads to the primary framing systems.
The standard building spans range from 20 feet to 70 feet. The standard eave heights range from 10 feet to 20 feet.

Lean-To: The Lean-To "LT" system is manufactured of solid web members having tapered or uniform depth rafters with pinned connections to uniform depth columns.

The standard roof system provided with the Lean-To structural system "PBR" 36 inch wide net coverage panels, with 1-1/4-inch high major webs at 12 inch centers, and utilizing a purlin bearing leg for underlying side-lap support.

As an option, the "Guardian Standing Seam" 24 inch wide system may be provided.

The 36 inch wide "A" sculptured wall panel is the standard wall covering for the Lean-To system. This panel features 1-1/4-inch deep inverted major ribs and semi-concealed sidelap fasteners and comes in a variety of colors.

The secondary framing system consists of the cold-formed, light-gage eave struts, roof purlins, wall girts, wind bracing and other members required to support the roof and wall covering. These members transmit the loads to the primary framing systems.

The standard building spans range from 20 feet to 70 feet. The standard eave heights range from 10 feet to 20 feet.

Building configurations covered by this evaluation are as follows:

Building Type	Roof Slope	Width	Eave Height	Bay Spacing	Live Load
	1:12	80'	12'	20'	40 psf
BC		to	to	or	or
	1/2:12	240'	25'	25'	30 psf
	1:12	20'	10'	20'	40 psf
SCSS		to	to	or	or
	1:12	70'	20'	25'	30 psf
	1/2:12	20'	10'	20'	40 psf
RF	4:12	to	to	or	or
	1:12	120'	25'	25'	30 psf
	1:12	15'	12'	20'	40 psf
LT		to	to	or	or
	1:12	30'	25'	25'	30 psf
	1:12	20'	10'	20'	40 psf
SC		to	to	or	or
	1:12	70'	20'	25'	30 psf

Lateral support for the inside flange of the rigid frame is provided by flange braces attached to the web of purlins or girts so that the compressive stress is within AISC allowable stress limits for any combination of loading. Rigid frame splice connections are field bolted utilizing high strength bolts.

TEST RESULTS

The tests and results listed below cover the current WI Building Code **Comm** requirements.
Welding: Weld test data has been submitted satisfying **s. Comm 53.53(10)**.

The tests and results listed below cover the future **IBC** Code requirements.
Welding: Weld test data has been submitted satisfying **s. 2208.1 [Comm 62.2208]**.

CALCULATIONS: All primary steel, built-up sections are manufactured from 50 psi minimum yield steel, all hot rolled sections from 42 psi minimum yield steel, designed in accordance with current AISI or AISC Specifications, whichever is applicable.

The design and assembly of structural joints and connections (primary and secondary steel) using high strength steel bolds conform to the "Specification for Structural joints Using ASTM A325 and A307 Bolts" approved by the Research Council on Structural Connections of the Engineering Foundation.

All secondary steel structure is designed in accordance with the current AISI or AISC Specifications, whichever is applicable, and all cladding material is designed in accordance with 1968 Edition "Specifications for Design of Light Gauge Cold Formed Steel Structural Members"-AISI.

LIMITATIONS OF APPROVAL

The limitations below apply both to the Building Code Applicable to Projects Submitted for Review Prior to July 1, 2002 and the **Wisconsin Amended IBC 2000 Code (effective 7/01/02):**

The approval number permits plan submittal without repetitious structural calculations. This approval is for uniform loading condition only. Any special concentrated loading condition is not included under this approval number and requires complete structural calculations.

This approval is not for a specific building, but rather an approval of the building design concept. The metal buildings must be constructed in accordance with the sample calculations (design concept) and details on file with the department.

INFORMATION REQUIRED ON PLANS SUBMITTED FOR APPROVAL

This evaluation number, member properties, size of all members, layout and other general requirements of section **s. Comm 50.12** must be indicated on each plan submittal. **NOTE: Member sizes may be shown in the building plan submittal or subsequent component plan submittal.**

Foundation plans must show details of footings as well as anchor bolt sizes and side thrust restraint when required.

The location and sizes of critical dimensions of all major structural members (rigid frames, columns, beams, end walls, etc.) must be shown. This must include the web and flange sizes at the base, haunch, ridge and any other location where member sizes change.

The size and spacing of purlins and girts must be shown on a cross-section or on roof and elevation framing plans.

The size and location of all diagonal bracing must be shown.

This approval will be valid through December 31, 2007, unless manufacturing modifications are made to the product or a re-examination is deemed necessary by the department. The Wisconsin Building Product Evaluation number must be provided when plans that include this product are submitted for review.

DISCLAIMER

The department is in no way endorsing or advertising this product. This approval addresses only the specified applications for the product and does not waive any code requirement not specified in this document.

Revision Date:
Approval Date: May 20, 2002 By: _____

Lee E. Finley, Jr.
Product & Material Review
Integrated Services Bureau

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